

# Question Paper

Exam Date & Time: 21-Nov-2018 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

### INTERNATIONAL CENTRE FOR APPLIED SCIENCES END SEMESTER THEORY EXAMINATION - NOV - 2018

#### I SEMESTER B.Sc (Applied Sciences) in Engg.

#### Introduction to Computers and Programming [CS 111]

Marks: 100

Duration: 180 mins.

### Answer 5 out of 8 questions.

- 1) Draw neat block diagram of a Computer and explain functions of Control unit and ALU. (6)
  - A)
  - B) List the salient features of Cache memory. (4)
  - C) List and explain various phases of C++ program execution. (10)
- 2) List and explain the essential properties of an algorithm? (10)
  - A)
  - B) Draw flow chart for finding factorial of given positive integer. (5)
  - C) Write an algorithm to find sum of the digits for a given positive integer. (5)
- 3) Write a complete C++ program to reverse given positive integer using do-while construct? (6)
  - A)
  - B) Draw nested if-else statement control structure and explain its control flow functionality? (8)
  - C) Differentiate between the "break" and "continue" statements in C++ programming with suitable illustration? (6)

- 4) Write a complete C++ program to insert an integer element into a 1D array by specifying position. (12)
- A)
- B) Write stepwise illustration for Linear searching of key element 14 from a 1D-array list {58, 62, 75, 88, 92, 105}. (8)
- 5) Write a complete C++ program to delete an integer element from an existing 1D array by specifying position? (12)
- A)
- B) Write a stepwise illustration for bubble sorting for the 1D array input {16, 12, 67, 11}. Indicate steps in each pass clearly with appropriate messages. (8)
- 6) Define trace and norm of a 2D array. Write a complete C++ program to compute and print the trace and norm of a 2D array. (12)
- A)
- B) Write in detail the use of following string-handling functions with an example code snippet? a)strlen( ) b) strcpy( ) (8)
- 7) Write a complete C++ program to add two M x N matrices with required condition checking while taking input matrix elements. Print the resultant matrix in an appropriate format. (12)
- A)
- B) Write a complete C++ program to count number of characters in a given string. (8)
- 8) Write a complete C++ program to count the number of words in a given sentence. (8)
- A)
- B) What are the difference between actual and formal parameters? Explain it with suitable C++ program. (12)

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